

Research  
Paper

## Yield and yield attributing characters of cowpea as influenced by biofertilizers and fertility levels var. GC-4

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### ABSTRACT

A field experiment was conducted on medium black calcareous soil of the Instructional Farm, Junagadh Agricultural University, Junagadh (Gujarat) during the *Kharif* 2008. The results of the experiment indicate that cowpea seeds inoculated with *Rhizobium* significantly increased the growth parameters viz., plant height, number of branches per plant as well as yield attributes like number of pods per plant, grain yield per plant, stover yield per plant and test weight. Significantly the highest grain (1441 kg ha<sup>-1</sup>) and stover (1716 kg ha<sup>-1</sup>) yields were also recorded by seed inoculation with *Rhizobium*. Fertilizing the crop with 50, 75 and 100 % RDF were found effective and significantly superior to control in respect of growth parameters and yield attributes viz., the highest grain (1439 kg ha<sup>-1</sup>) and stover (1678 kg ha<sup>-1</sup>) yields were reported with 100 % RDF but was found statistically at par with 75 % RDF.

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**Key words :** Cowpea, Biofertilizer, Fertility levels

## INTRODUCTION

Cowpea [*Vigna unguiculata* (L.) Walp, synonym, *Vigna sinensis* (L.) savi ex Hassk] is one of the important *Kharif* pulses grown in the India for grain, forage and green manure purpose. It is called as vegetable meat due to highly nutritious constitutions with high protein 23-24 % (average 23.4 %), carbohydrate 60.3 %, minerals and vitamins and also rich source of iron and calcium. It belongs to the family *Fabaceae* and probably a native of Central Africa.

The seeds treated with bacterial culture of *Rhizobium* increase nodulation and influence seed yield as well as economize the input cost of fertilizer to some extent. It also renders protection against soil deterioration and environmental pollution caused by heavy use of chemical fertilizers. The efficient strain of *Rhizobium* can fix about 90 kg of nitrogen per hectare in one season and enrich soil nitrogen.

Phosphorus is the key element in the process of conservation of solar energy. The optimum supply of

phosphorus to the plant stimulates root development and growth, thereby helps to establish seedlings quickly and also hastens maturity as well as improves the quality of crop yield. It also reduces the harmful effect of excess nitrogen in plants.

## MATERIALS AND METHODS

A field experiment was conducted during the *Kharif* season 2008 at Instructional farm, Junagadh Agricultural University, Junagadh (Gujarat) to study the sixteen treatments comprised of all possible combinations of four levels of biofertilizers (B<sub>1</sub>- without inoculation, B<sub>2</sub>- with PSB inoculation, B<sub>3</sub>- with liquid PSB inoculation and B<sub>4</sub>- with *Rhizobium* inoculation) and four levels of fertilizer viz., recommended dose of fertilizers (R<sub>0</sub> – 0 %RDF, R<sub>1</sub> – 50 % RDF, R<sub>2</sub> – 75 % RDF and R<sub>3</sub> – 100 % RDF), were tried in factorial randomized block design with four replications on medium black calcareous soil with pH of 7.9 which was free from any kind of salinity or sodicity hazards. The gross and net plot sizes were 5.00 m x 2.70